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NOTES ON THE TOTUAVA (*CYNOSCIUS MACDONALDI GILBERT*).

[In the northern part of the Gulf of California there is found in great abundance, a species of weak-fish which reaches a huge size, six feet or more in length, and which has much value as food. It is known locally as *Totuava*. I have received from Mr. Eiichiro Nakashima, a graduate of the Fisheries School at Tokyo, a man who has had considerable experience in the pursuit of this fish, a series of notes concerning it. I here present a condensation of his observations.—DAVID STARR JORDAN.]

CYNOSCIUS MACDONALDI GILBERT.

The *Totuava* is caught mainly about the mouth of the Colorado River and southward to Guaymas in Sonora. Shallow points with sandy bottoms are the best fishing grounds. These fishes are rare in winter, very abundant in summer. They live both in clear and muddy water. The preferable temperature is from 57 to 80 degrees F.

In the winter they go southward to Guaymas. Their migration is in part coincident with that of the small fishes on which they feed. These avoid the inflowing cold water of the Colorado. They spawn mainly in early May, apparently in shallow water. After this they are very lean. They often come into very shallow water. They are omnivorous, feeding on any kind of small fish or crabs, but especially on

shrimps. In pursuing small fish they often leap a foot or two from the water. They are not very shy or very active; when one is hooked or speared the others crowd around as if in curiosity.

The male makes a very peculiar noise, "gu-gu," when caught. The female is larger than the male and deeper in the body. The air-bladder is very large and thick, spread in the greater part of the abdomen. The bladder in the male is thin, like paper.

In the spring the young of three inches swim close to the shore; by the rings on the scales we estimate these to be a year old; those of three feet in length as four years old, those of 6 to 6½ feet, 8 or 9 years old, this being the maximum size. The males seem to breed at the age of four years; the females develop more slowly.

Along with the *Totuava* occurs a related species, *Cynoscion reticulatus* (Gunther). It is much smaller, less than three feet in length. Its colors are more lustrous, very beautiful green, blue and purple above and below posteriorly light yellow.

The eggs are larger than in the *Totuava* and the spawning season comes earlier. [This species, (unlike the *Totuava*) extends southward to Panama, and with other related forms, it is known as *Corvina*.]

EIICHIRO NAKASHIMA,
Kingsburg, Calif.

EVIDENCE OF THE PRESENCE OF *CAR-CHARODON* ON THE NEW JER- SEY COAST DURING THE PAST SUMMER

As there exists some doubt whether the Great White Shark, *Carcharodon carcharias*, was among the species present on the coast in this vicinity during the recent shark scare, the following evidence seems worth noting.

In a Broadway window there were recently on view two teeth of a freshly caught shark, indubitably

belonging to *Carcharodon carcharias*. On inquiry I was informed that they were secured from a shark caught on the New Jersey coast in the early part of June. The teeth were about an inch in height (including root), which would indicate a juvenile specimen of this species, 7 or 8 feet in length. This accords with the label accompanying the teeth, which said the shark was 7 feet long.

L. HUSSAKOF,
New York, N. Y.

[The editor has seen a mounted *Carcharodon carcharias* 7½ feet long taken off South Amboy, N. J., July 14, 1916, by Mr. Michael Schliesser, of 29 East 132d Street, N. Y.—J. T. N.]

NOTES ON THE DISTRIBUTION OF THREE CALIFORNIA RAYS,

Plathyrrhinoides triseriatus (Jordan and Gilbert).

A ray of this species was found washed up on the beach immediately north of Point Conception, on July 13, 1916. This is the northernmost record for this species.

Raja binoculata Girard.

A large specimen of this giant ray was noted on the beach between San Simeon and Piedras Blancas, in northern San Luis Obispo County. A small one, 192 mm. long, was taken from the stomach of a Rock-cod, *Sebastodes auriculatus*, which was caught in about 60 feet of water off Pizmo Beach, on the southern coast of the same county. These two records are the southernmost for this ray.

? *Manta birostris* (Walbaum).

Two rays were noted by the writer, several years ago, off the wharf at Redondo, in Los Angeles County. One was swimming near the surface, while the other was caught by hook and line. They measured

about four feet across the "wings," had cephalic fins, and lacked the serrated spine on the tail. The only record heretofore published on the Devil Ray in California was based upon the stories of fishermen of San Diego, and is given by Jordan and Evermann (Fishes of North and Middle America, 1896, I, p. 92). The present record is presented with the intention of corroborating the evidence of the occurrence of this or a related ray on the coast of Southern California.

CARL L. HUBBS,
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AMBLYSTOMA OPACUM ON LONG ISLAND.

To the records of adults published in COPEIA, July 1, 1914, nothing has been added.

Concerning the ova Mr. Deckert writes, COPEIA, March 24, 1916, that two egg masses containing living embryos were found, September 25, 1913, under bark in a dry pool near Silver Lake, White Plains, N. Y. The larvae hatched one day after having been placed in water. Observations made during the present season support this interesting and exceptional habit of fall ovulation for *Ambystoma*.

While searching for the ova of *A. tigrinum* on the Hudson Estate near Syosset, L. I., April 7th, we found larvae of *A. opacum*, $1\frac{1}{8}$ to $1\frac{1}{4}$ inches long, in several of the temporary pools. It is obvious that these could not have developed and reached their present size from ova deposited in the same spring, since the pools were ice covered up to nearly April 1.

Sixteen of the larvae after having been placed in a laboratory aquarium developed a disease (white growth on gills) from which they recovered quickly after a small quantity of salt had been added to the water. They are feeding freely on earth worms, cut into small pieces, and measure, May 4th, $1\frac{3}{4}$ inches

in length. The front legs were present at the time of capture, the hind legs appeared April 18. In color they are heavily-mottled dark grey on a yellowish background, including the caudal membrane. A more or less well defined line of yellowish dots runs laterally from behind the gills to the tip of the tail.

Late in May, 1915, a number of larvae, $2\frac{1}{2}$ inches in length, were collected on the Hudson Estate and another lot was brought in by Mr. A. H. Helme, who reported them very common in a pool near his home at Miller Place. These larvae began to transform early in June, but all died during the process.

Other larval records for Long Island are: East Norwich, April 20, 1916, Larvae ($1\frac{1}{4}$ inch) common in small pond near Oyster Bay Road.

Near Coram, April 30, 1916, larvae (1 inch); Dr. Overton.

Although only two adult records were obtained during many years, the larval records sufficiently indicate a general distribution and a common occurrence for this salamander on Long Island.

GEORGE P. ENGELHARDT,
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NOTES ON AN UNUSUAL FEEDING HABIT OF THE SNAPPING TURTLE,
CHELYDRA SERPENTINA
(LINN).

The *Chelydra serpentina* is considered among naturalists to be a strictly carnivorous animal. The following quotations are examples: "They are extremely voracious, feeding on fish, reptiles, or on any animal substance that falls in their way."¹ "Their food consists entirely of aquatic animals; fishes and young ducks are their ordinary prey."² "The turtle

¹ North American Herpetology. Vol. I, p. 145, by J. E. Holbrook.

² Contributions to the Natural History of the United States of America. Vol. I, p. 346, by Louis Agassiz.

is entirely carnivorous."³ "It is wholly carnivorous in its habits, and is very destructive to fish and young water-fowl."⁴

The above statements are undoubtedly true in the main, fish and other animal life constituting the chief part of its food. The following record is, therefore, of interest as being an exception to the usual habit.

On July 9, 1916, I took a Snapping Turtle (carapace 12 inches in length) from a mud hole on the border of a salt marsh at Sagamore Beach, Cape Cod, Massachusetts. The stomach was well filled with recently eaten marsh grass (*Distichlis spicata*), the blades being intact, although bent and tangled. There was nothing else in the stomach. The turtle was a male, quite fat and apparently in a healthy condition.

H. L. BABCOCK,
Dedham, Mass.

SNAKE CONSERVATION IN CALIFORNIA.

The Lorquin Natural History Club of Los Angeles, Calif., is at present devoting some time and money to calling the attention of Californians to the use of some of the harmless snakes and the reasons why they should not be killed. In the vicinity of the city signs are being posted at mountain resorts, small cities and along roads. These signs read as follows:

DO NOT KILL HARMLESS SNAKES.

They are useful in destroying disease-bearing rodents.

The only snake in California that can harm you is the Rattlesnake.

*Lorquin Natural History Club,
Los Angeles.*

³ The Reptile Book, p. 14, by R. L. Ditmars.

⁴ The American Natural History. Vol. IV, p. 41, by W. T. Hornaday.

The club is not a snake club, for only about two out of its twenty Active Members are deeply interested in herpetology.

Among the most useful of the California snakes is the Pacific Bull Snake (or Gopher Snake), *Pituophis catenifer*, which is common on the Pacific Coast. Its food consists chiefly of rodent pests, such as gophers, mice, ground-squirrels and small rabbits. Although he prefers these animals for food, the Pacific Bull Snake has a rather accommodating appetite, which must under the force of necessity adapt itself to circumstances and include in his ophiological menu, birds, an occasional rat, bats, and sometimes a lizard or two. Sometimes an egg (or several) is commandeered, but I have never known of a Pacific Bull Snake's having eaten any egg as large as a chicken's.

One sixty-four inch Pacific Bull Snake that was brought to me was handled too much. A slight touch of *mal de mer* resulted in his vomiting four full-grown gophers, none of which was more than slightly digested. On another occasion more than a dozen mice had the misfortune to run foul of a mouse trap I had set for living mice. These same mice had the additional misfortune all to find their way into the stomach of a good-sized hungry Pacific Bull Snake.

Taking it all in all, the good done by the Pacific Bull Snake has already earned him the protection of many ranchers and far outweighs any harmful depredations his lack of discretion may at times mislead him to make.

PAUL D. R. RUTHLING,
Los Angeles, Calif.

NOTES ON THAMNOPHIS SIRTALIS FROM CAPE ANN, MASSACHUSETTS.

Dr. A. G. Ruthven in his monograph on the Garter Snakes, plots out some curves of scale variation in the genus and suggests the desirability of securing data on the scale formulae of specimens from other

sections of the country. Accordingly having had the opportunity this summer of getting the specimens to make some measurements from the neighborhood of Rockport and Gloucester, Mass., I present the results here:

SEX, LENGTH	LABIALS		OCULARS		SCALE ROWS			VEN- TRALS	SUB- CAUDALS
	Upper	Lower	Pre.	Post.	Ant.	Med.	Post.		
5 1. Fem. 24 in.	8-8	8-10	1	3	19	19	(?)	150	66
2. Fem. 13 $\frac{1}{2}$ "	7-7	10-11	2-1	3	19	19	17	142	63 8 undivided
3. Fem. 24 "	7-8	9-9	1	3	19	19	17	148	60
4. Fem. 26 "	8-9	9-9	1	4	19	19	17	145	60
5. Male 23 "	7-7	9-9	1	3	19	19	17	151	75
6. Fem. 18 "	7-7	9-10	1	3	19	18	17	144	60
7. (?) 20 "	7-7	10-9	1	3	19	19	17	149	Tail partly lost 1 undivided
8. (?) 25 "	8-7	10-9	1	3	20	19	17	147	67
9. Male 21 "	7-7	9-10	1	3	19	19	17	141	74
10. Male 8 "	7-7	9-9	1	3	19	19	17	139	75
11. Male 18 $\frac{1}{2}$ "	7-7	10-10	1	3	18	18	17	148	74

5 Aug. 6 bore 19 young.

The Garter Snakes of this region show somewhat more uniformity in coloring than those of the Middle Atlantic States. I have found that most of the adults are a very dark brown or black in the ground color, the stripe being fairly clear and well defined. As a rule, too, the spots are not as prominent as in specimens that come from the region to the south.

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Edited by J. T. NICHOLS, American Museum of Natural History

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